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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Woo Sik Yoo

M-11914 US

3118

7590

05/05/2004

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EXAMINER

TRINH, MICHAEL MANH

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/005,827

**Applicant(s)**

YOO, WOO SIK

**Examiner**

Michael Trinh

**Art Unit**

2822

ALW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 2-6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-6, 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

\*\*\* This office action is in response to Applicant's amendment filed on January 22, 2004.

Claims 1,7,11-16 were canceled. Claims 2-6,8-10 are currently pending.

\*\*\* The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Drawings*

\*\*\* The drawing Figure 2 is objected to as failing to comply with 37 CFR 1.84(p)(5) because a) they do not include the following reference sign(s) mentioned in the description: reference sign "24" for the wafer (specification page 3, lines 21-28); and b) they include the following reference sign(s) not mentioned in the description: reference signs "14", "30", "50", and "60". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

1. Claims 2-5 and 8-9 are rejected under 35 U.S.C. 102( b) as being by Granneman (WO 98/01890).

Granneman teaches (at Figs 1-2; page 6, line 18 through page 9) a system for processing a semiconductor device wafer comprising: a processing chamber 2; and a first heatable plate 6 positioned within said processing chamber and defining a first internal cavity (Fig 1) configured to receive a first gas 12 through a first passage into said first internal cavity at a first temperature and to emit said first gas from said first internal cavity at a second temperature through a second outlet passage 10 (page 6, lines 18-38); and a second heatable plate 7 disposed adjacent to said first plate, said first plate 6 and said second plate 7 defining a processing area therebetween for receiving a wafer 3, wherein said second plate defines a second internal cavity configured to receive a second gas through a first passage into said second internal cavity at a first temperature and to emit said second gas from said second internal cavity at a second temperature through a second outlet passage 10, the first emitted gas and the second emitted gas varying temperature of the processing area (Figs 1-2; page 7, lines 1-38; page 8, line 13 through page 9). Re further claim 8, as applied above, the system comprising a chamber 2; and a first heatable plate 6 and a second heatable plate 7 positionable within the chamber 2, and defining a processing area

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therebetween for receiving a wafer 3, each of the heatable plates 6/7 including: an internal cavity defining an internal wall and configured to receive a gas (Figs 1-2; page 6, lines 8-18; page 7, lines 1-38; page 8, line 13 through page 9); means 8,9 for heating the internal wall to a preselected temperature; and an outlet portion defining a plurality of holes 10 (Figs 1-2) for emitting gas to the processing area, the gas varying the temperature of the processing area. Moreover, since the claims are drawn to an apparatus system, the recitation of gas limitations for varying temperature in the apparatus claims are entitled to little weight in determining the patentability of the claimed apparatus, wherein it is well settled that the patentability of apparatus claims cannot be predicated on processing limitations. Re claim 3 and further claim 8, wherein said second passages comprise a plurality of holes 10 as outlet portion defined on a surface of said first and said second plates (Figs 1-2). Re claims 4 and further claim 8, wherein said first plate 6 and said second plate 7 comprises heat source means 8,9 for heating said plate to a preselected temperature (page 6, lines 28-33; page 7, line 27 through page 8). Re claim 5 and claim 9, wherein said first gas includes hydrogen and argon (page 4, lines 20-22), oxidizing or reducing gas for treatment (page 8, lines 2-5), and inert gas (page 8, lines 37-38).

### ***Claim Rejections - 35 USC § 103***

2. Claims 5 and 9 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Granneman (WO 98/01890) taken with Miyasaka (6,017,779).

Granneman teaches (at Figs 1-2; page 6, line 18 through page 9) a system for processing a semiconductor device wafer as applied to claims 2-5 and 8-9 above. Re claim 5 and claim 9, wherein said first gas includes hydrogen and argon (page 4, lines 20-22), oxidizing or reducing gas for treatment (page 8, lines 2-5), and inert gas (page 8, lines 37-38).

Re further claims 5 and 9, Granneman already teaches using hydrogen gas, inert gas, and oxidizing gas, but lacks mentioning other gases of He, H<sub>2</sub>, O<sub>2</sub>, Ar, N<sub>2</sub>, and mixtures thereof.

Since the claims are drawn to an apparatus system, the recitation of gas limitations in the apparatus claims are entitled to little weight in determining the patentability of the claimed apparatus, wherein it is well settled that the patentability of apparatus claims cannot be predicated on processing limitations. In any event, Miyasaka is evidently cited to teach (at col

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10, lines 62-65) introducing gases into a chamber, wherein the gases at least selected from a group consisting of He, H<sub>2</sub>, O<sub>2</sub>, Ar, and N<sub>2</sub>.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to introduce gases into the chamber for processing a semiconductor wafer of Granneman by alternatively employing at least one of the other gases of He, H<sub>2</sub>, O<sub>2</sub>, Ar, and N<sub>2</sub>, as taught by Miyasaka. This is because these gases are art recognized alternative for substitution, and for processing of a semiconductor wafer to form a semiconductor device.

3. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Granneman (WO 98/01890) taken with Zhao et al (6,189,482).

Granneman teaches (at Figs 1-2; page 6, line 18 through page 9) a system for processing a semiconductor device wafer as applied to claims 2-5 and 8-9 above.

Granneman already provides the first and second plates having internal cavity, but does not teach the internal cavity further comprising a buffer to disperse the first gas throughout the internal cavity.

However, Zhao teaches (at Fig 1A, col 11, lines 27-37; 16A; col 30, line 12 through col 31) providing the internal cavity with a buffer 62 to disperse the gas throughout the internal cavity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the internal cavity of the first and second plates of Granneman by providing the internal cavity with a buffer as taught by Zhao. This is because of the desirability to disperse the gas throughout the internal cavity so as to provide a uniform distribution of gases onto the wafer.

### ***Response to Arguments***

\*\*\* Applicant's amendment and remarks filed January 22, 1994 have been fully considered but they are not persuasive, and are also moot in view of the new ground(s) of rejection.

Applicant mainly remarked (1/22/04 remark pages 3-4) that "Applicant could find no teaching or suggestion in Granneman" that a first heatable plate and a second heatable plate

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“defining a processing area therebetween” and gas emitted from the plates enters the processing area thereby “...varying the temperature of the processing area”.

In response, this is noted and found totally unconvincing. As clearly described above, Granneman (WO 98/01890) prima facie teaches and shows the first plate 6 and said second plate 7 defining a processing area therebetween for receiving a wafer 3 (at Figs 1-2; page 6, line 18 through page 9), wherein first and second internal cavities configured to receive first and second gases at a first temperature and to emit the gases at a second temperature through outlet passage portions having a plurality of holes 10 (Figs 1-2, page 6, lines 18-38; pages 7-8) so that the heated gases emitted from the plurality of holes of the first and second heatable plates varied the temperature in the processing area having the wafer 3 between the plates (Figs 1-2),

\*\*\*\*\*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

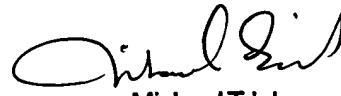
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Trinh whose telephone number is (571) 272-1847. The examiner can normally be reached on M-F from 8:30 Am to 4:30 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Oas-eDan

  
Michael Trinh  
Primary Examiner